

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-12 (Canceled)

13. (New) A polyelectrolyte composition for a humidity sensitive membrane of a humidity sensor, comprising 35-50 wt% of at least one compound selected from diamine-based compounds, 45-64.9 wt% of at least one compound selected from dihaloalkane-based compounds, and 0.1-5 wt% of at least one compound containing cross-linking functional groups.

14. (New) The polyelectrolyte composition according to claim 13, wherein the diamine-based compound is a compound selected from the group consisting of *N,N,N',N'-tetramethylaminoethane*, *N,N,N',N'-tetraethylaminoethane*, *N,N,N',N'-tetramethyl-1,3-propanediamine*, *N,N,N',N'-tetraethyl-1,3-propanediamine*, *N,N,N',N'-tetramethyl-1,4-butanediamine*, *N,N,N',N'-tetraethyl-1,4-butanediamine*, *N,N,N',N'-tetramethyl-2-butene-1,4-diamine*, *N,N,N',N'-tetraethyl-2-butene-1,4-diamine*, 1,3-bis(dimethylamino)-2-propanol, 1,3-bis(diethylamino)-2-propanol, *N,N,N',N'-tetramethyl-1,3-diaminobutane*, *N,N,N',N'-tetraethyl-1,3-diaminobutane*, 1,3-di(4-pyridyl)propane, 4,4'-bipyridyl, 2,2'-bipyridyl, 1,4-diazabicyclo[2.2.2]octane, *N,N'-dimethylpiperazine*, *N,N'-dimethyl-1,3-di(4-piperidyl)propane*, pyrazine, pyrazine amide, 4-(*N,N'-dimethylamino*)pyridine, *N,N,N',N'-tetramethyl-1,5-pentanediamine*, *N,N,N',N'-tetraethyl-1,5-pentanediamine*, *N,N,N',N'-tetramethyl-1,6-hexanediamine* and *N,N,N',N'-tetraethyl-1,6-hexanediamine*, or a mixture of two or more of them.

15. (New) The polyelectrolyte composition according to claim 13, wherein the dihaloalkane is a compound selected from the group consisting of compounds containing two halogen atoms, such as chlorine, bromine and iodine in alkyl group having 1 to 18 carbon atoms, wherein the cyclic compounds have 5 to 6 carbon atoms and contain two

halogen atoms and a mixture of two or more of them, such as, 1,4-dichloro-2-butene, 1,4-dibromo-2-butene, 1,3-dichloro-2-propanol, 1,3-dibromo-2-propanol, 2,3-dichloropropanol, 1,3-dichloropropanone, 1,3-dibromopropanone, 1,4-dichloro-2-butanol, bis-2-chloroethyl ether, bis-2-bromoethyl ether, 1,2-bis(2-chloroethoxy)ethane, 1,2-bis(2-bromoethoxy)ethane, 1,3-dichloroacetone, 1,3-dibromoacetone,  $\alpha,\alpha'$ -dichloro-*o*-xylene,  $\alpha,\alpha'$ -dichloro-*m*-xylene,  $\alpha,\alpha'$ -dichloro-*p*-xylene,  $\alpha,\alpha'$ -dibromo-*o*-xylene,  $\alpha,\alpha'$ -dibromo-*m*-xylene and  $\alpha,\alpha'$ -dichloro-*p*-xylene.

16. (New) The polyelectrolyte composition according to claim 13, wherein the at least one compound containing cross-linking functional groups is a compound selected from the group consisting of halogen-containing alcohols, halogen-containing carboxylic acids, amine-containing alcohols and amine-containing carboxylic acids, or a mixture thereof.

17. (New) The polyelectrolyte composition according to claim 16, wherein the halogen-containing alcohol is a compound selected from the group consisting of alcohol compounds containing one halogen atom, such as chlorine, bromine or iodine in alkyl group having 2 to 18 carbon atoms or a mixture thereof and wherein the amine-containing alcohol is a compound selected from the group consisting of 2-aminoethanol, 3-aminopropanol, 2-aminopropanol, amino-2-propanol, aminobutanol, aminocyclohexanol, 2-(ethylamino)ethanol, 2-(methylamino)ethanol, diethanolamine, triethanolamine, *N,N*-dimethylaminoethanol, *N,N*-diethylaminoethanol, *N,N*-dibutylaminoethanol, *N,N*-dimethylaminopropanol, *N,N*-diethylaminopropanol, 3-pyrrolidinol, 1-methyl-3-pyrrolidinol, 1-methyl-2-pyrrolidylethanol, 3-hydroxypiperidine, 4-hydroxypiperidine, and 1-(2-hydroxyethyl)piperazine, or a mixture thereof.

18. (New) The polyelectrolyte composition according to claim 16, wherein the halogen-containing carboxylic acid is a compound selected from the group consisting of carboxylic acids containing one halogen atom, such as chlorine, bromine or iodine and having 2 to 18 carbon atoms, or a mixture thereof.

19. (New) The polyelectrolyte composition according to claim 16, wherein the amine-containing carboxylic acid is a compound selected from the group consisting of amino acids containing 2 to 18 carbon atoms, or a mixture thereof.

20. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 13, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

21. (New) The polyelectrolyte ink according to claim 20, wherein the cross-linking agent is selected from the group consisting of diisocyanate, methylol melamine, methylol urea, blocked isocyanate, aziridine, oxazoline, epoxy, diaminoalkane and carbodiimide cross-linking agent.

22. (New) A process for preparing a humidity sensor, wherein a polyelectrolyte ink is spread using an inkjet printing mode and then treated with heat to form a humidity sensitive membrane.

23. (New) The process for preparing the humidity sensor according to claim 22, wherein a polyelectrolyte ink comprising 10-50 wt% of a polyelectrolyte composition having 35-50 wt% of at least one compound selected from diamine-based compounds, 45-64.9 wt% of at least one compound selected from dihaloalkane-based compounds, and 0.1-5 wt% of at least one compound containing cross-linking functional groups, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant is spread on a board having electrodes thereon and then treated with heat at 50-200°C to form the humidity sensitive membrane.

24. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 14, 1-10 wt% of a cross-linking agent, 38-

88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

25. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 15, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

26. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 16, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

27. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 17, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

28. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 18, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

29. (New) A polyelectrolyte ink, comprising 10-50 wt% of a polyelectrolyte composition according to claim 19, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent, and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.